

PATENT CLAIMS

1. Method of determining refractive index of an ob-
5 ject compared to a refractive index of a surrounding me-
dium, **characterized by**

exposing said sample to a laser object beam and
letting the object beam interfere with a laser reference
beam to obtain a hologram,

10 analyzing the hologram for phase information,
determining if the refractive index of the object
is higher or lower than the refractive index of the sur-
rounding medium based on said phase information.

2. The method as claimed in claim 1, **characterized**
15 in that said analyzing and determination are performed by a
computer.

3. The method as claimed in claim 1 or 2, **charac-**
terized by

said object comprising particles of a first sub-
20 stance having a first refractive index and a second sub-
stance having a second refractive index and a medium having
a refractive index between said first and second refractive
index;

counting the number of particles having a first re-
25 fractive index and counting the number of particles having
a second refractive index in a specific area of said
sample.

4. A device for determining refractive index of an
object compared to a refractive index of a surrounding me-
30 dium, **characterized by**

a laser source for exposing said sample to a laser
object beam and letting the object beam interfere with a
laser reference beam to obtain a hologram,

a computer for analyzing the hologram for phase in-
35 formation, and for determining if the refractive index of

the object is higher or lower than the refractive index of the surrounding medium based on said phase information.

5. The device as claimed in claim 4, characterized in that

5 said object comprising particles of a first substance having a first refractive index and a second substance having a second refractive index and a medium having a refractive index between said first and second refractive index; and

10 said computer is arranged to count the number of particles having a first refractive index and the number of particles having a second refractive index.

6. Computer program arranged on a tangible medium for execution on a computer for performing at least one of
15 the method steps of any one of claims 1 to 3.

7. Use of the method of any one of claims 1 to 3 for the separation and counting particles in a particle blend.

8. Use of the method of any one of claims 1 to 3
20 for calculating the volume ratio between particles in a particle blend.